5

CLAIMS

- 1. A hologram recording material comprising a metal oxide matrix and a photopolymerizable compound, said metal oxide matrix having a halogen-containing organic group.
- The hologram recording material according to claim
 wherein said halogen-containing organic group is a
 halogenated hydrocarbon group.
- 3. The hologram recording material according to claim 10 1, wherein the metal oxide matrix is formed by hydrolysis and polymerization reaction of a metal alkoxide compound, and said metal alkoxide compound includes a metal alkoxide compound represented by the following general formula (1):

 $(R_H)mM(OR)n$ (1)

- wherein R_H represents a halogen-containing organic group, R represents an alkyl group, M represents a metal atom, m represents 1 or 2, and m + n represents the valence of the metal atom M.
- The hologram recording material according to claim
 1, wherein the metal oxide matrix is made mainly of an oxide of silicon.
 - The hologram recording material according to claim
 wherein said photopolymerizable compound has an aromatic ring.
- 25 6. The hologram recording material according to claim

5

10

- 1, further comprising a photopolymerization initiator.
- 7. A process for producing a hologram recording material, comprising the steps of:

hydrolyzing a metal alkoxide compound which includes a metal alkoxide compound represented by the following general formula (1):

 $(R_{\rm H}) \, \text{mM}(OR) \, \text{n} \qquad (1)$

wherein R_H represents a halogen-containing organic group, R represents an alkyl group, M represents a metal atom, M represents 1 or 2, and M + M represents the valence of the metal atom M, thereby yielding a precursor of a metal oxide matrix;

mixing a photopolymerizable compound before or after said hydrolysis; and

curing the metal oxide matrix precursor mixed with the photopolymerizable compound, thereby forming a metal oxide matrix.

8. A hologram recording medium having the hologram recording material according to any one of claims 1 to 7.